LAKE: ESTES L (VLMP 31)
TOWN: SANFORD
COUNTY: YORK

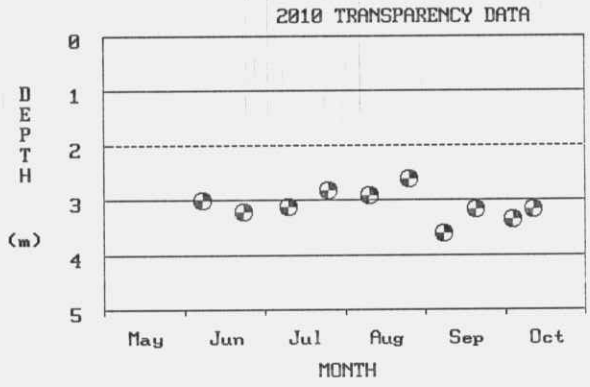
MIDAS: 7
TRUE BASIN: 2
SAMPLE STATION: 1

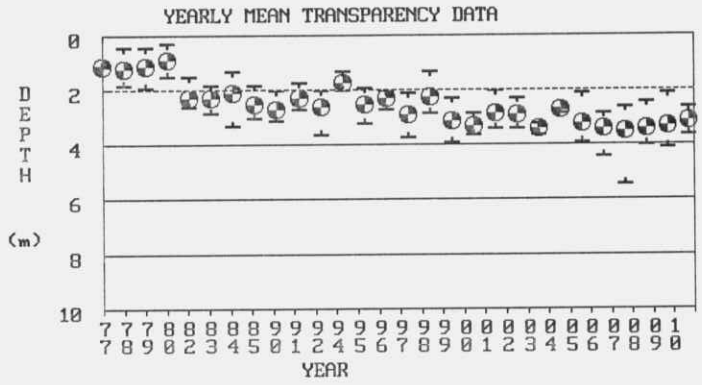
WHOLE LAKE INFORMATION
MAX. DEPTH: 9 m. (30 ft.)
MEAN DEPTH: 3 m. (10 ft.)
DELORME ATLAS #: 02
USGS QUAD: ALFRED
IFW REGION A: Sebago Lake (Gray)
IFW FISH. MANAGMENT: Warmwater

TRUE BASIN CHARACTERISTICS
SURFACE AREA: 66.8 ha. (165.1 a.)
FLUSHING RATE: 55.72 flushes/yr.
VOLUME: 2503694.0 cu. m. (2031 ac.-ft.)
DIRECT DRAINAGE AREA: 22.85 sq. km. (8.82 sq. mi.)

PLEASE NOTE THE FOLLOWING: The SAMPLE STATION # refers to the location sampled. The term TRUE BASIN is used to define areas within a lake that are separated by shallow reefs or shoals and therefore function as separate lakes. There are approximately 50 lakes in the state that have more than 1 True Basin. True Basin Characteristics are now being included in the first section of these reports to enable users of the Phosphorous Loading Methodology to better evaluate the data. If there is no data for a particular True Basin, True Basin Characteristics must be obtained from the DEP. ESTES L has 2 True Basin(s).

SECCHI DISK TRANSPARENCY GRAPHS:





Note: 2010 graphs may indicate multiple readings taken on a given day.

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

[* indicates that Secchi disk was visable at bottom of lake (or one reading used in calculation was visable)].

	MEAN COLOR (SPU)	MEAN pH	MEAN ALK (mg/l)	MEAN COND. (uS /cm)	TOTAL PHOS. MEANS (ppb) EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	SECCHI DISK (m.) MIN.	MEAN	MAX.	N	CHLOROPHYLL A(ppb) MIN.	MEAN	MAX.	TROPHIC STATE INDICES EPI PHOS C	G	SEC	CHL
YEAR																			
1977	-	-	-	-	14	-	-	-	1.1	1.1	1.1	1	41.6	41.6	41.6	-	-	-	-
1978	80	6.95	16.8	102	-	-	-	-	0.4	1.2	1.8	6	6.2	42.0	90.1	-	-	-	114
1979	89	6.17	11.5	92	-	-	-	-	0.4	1.1	1.9	7	0.2	30.1	69.9	-	-	-	-
1980	82	6.56	12.6	93	-	-	-	-	0.3	0.9	1.5	5	17.0	17.0	17.0	-	-	-	-
1982	96	6.71	14.2	72	-	-	-	-	1.5	2.3	2.6	5	4.6	11.1	20.6	-	-	-	75
1983	80	6.51	10.0	48	-	-	-	-	1.8	2.3	2.8	5	4.1	15.2	28.4	-	-	-	84
1984	71	6.59	13.9	55	-	-	-	-	1.3	2.1	3.3	6	3.0	16.6	39.3	-	-	-	87
1985	-	7.26	15.0	75	-	-	-	-	1.8	2.5	3.0	5	8.2	19.8	28.8	-	-	-	92
1990	43	6.99	12.8	85	23	-	-	-	2.0	2.7	3.1	4	7.7	11.3	18.9	-	-	-	-
1991	105	6.84	12.0	67	33	-	-	-	1.7	2.3	2.7	4	1.9	7.2	11.5	-	-	-	-
1992	-	-	-	-	-	-	-	-	2.0	2.6	3.6	4	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	1.3	1.7	2.0	3	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	1.9	2.5	3.2	5	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	2.0	2.3	2.7	5	-	-	-	-	-	-	-
1997	45	7.13	16.0	112	17	-	-	-	2.1	2.9	3.7	5	9.5	9.5	9.5	-	-	-	-

LAKE: ESTES L (VLMP 31)
TOWN: SANFORD
COUNTY: YORK

MIDAS: 7
*TRUE BASIN: 2
*SAMPLE STATION: 1

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

	MEAN COLOR (SPU)	MEAN pH	MEAN ALK (mg/l)	MEAN COND. (uS /cm)	TOTAL PHOS. MEANS (ppb) EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	SECCHI DISK (m.) MIN.	MEAN	MAX.	N	CHLOROPHYLL A(ppb) MIN.	MEAN	MAX.	TROPHIC STATE INDICES EPI PHOS C	G	SEC	CHL
YEAR																			
1998	23	-	15.0	113	26	-	28	-	1.3	2.2	2.8	5	15.0	15.0	15.0	-	-	-	-
1999	-	-	-	-	-	-	-	-	2.3	3.1	3.9	5	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	2.8	3.3	3.6	5	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	2.0	2.8	3.4	4	-	-	-	-	-	-	-
2002	35	-	17.5	128	14	-	12	-	2.3	2.9	3.4	5	8.7	9.0	9.3	-	-	-	-
2003	-	-	-	-	-	-	-	-	3.2	3.4	3.6	4	-	-	-	-	-	-	-
2004	53	7.24	16.8	114	19	-	40	-	2.7	2.7	2.8	1	15.0	15.0	15.0	-	-	-	-
2005	49	7.16	15.5	144	18	20	37	-	2.1	3.2	3.9	4	12.0	12.0	12.0	-	-	-	-
2006	63	7.10	12.7	129	20	21	-	-	2.8	3.4	4.4	6	4.0	4.3	4.5	-	-	-	-
2007	-	-	-	-	-	20	-	-	2.6	3.5	5.4	5	-	-	-	-	-	-	-
2008	-	-	-	-	-	19	-	-	2.4	3.4	4.0	3	-	-	-	-	-	-	-
2009	-	-	-	-	-	20	-	-	2.1	3.3	4.1	5	-	-	-	-	-	-	-
2010	-	-	-	-	-	17	-	-	2.6	3.1	3.6	5	-	-	-	-	-	-	-
SUMMARY:	65	6.73	14.2	95	20	19	29	-	0.3	2.5	5.4	28	0.2	17.3	90.1	-	-	-	90

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

	SAMPLE DATE															
DEPTH	08/22/91		09/18/91		08/22/97		08/21/98		08/22/02		08/19/04		08/16/05		08/24/06	
m	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm
0.0	20.2	6.4	22.7	8.8	22.0	6.2	24.0	8.9	25.1	7.9	23.7	8.8	25.6	6.8	24.4	7.6
1.0	20.1	6.1	22.0	7.6	22.0	6.1	24.0	8.9	25.0	7.8	23.4	8.7	24.8	6.7	23.3	7.5
2.0	18.7	6.1	20.9	6.4	21.9	5.9	23.1	8.8	24.9	7.5	21.9	4.6	24.6	6.6	23.2	7.4
3.0	18.5	6.0	20.0	5.5	21.9	5.7	23.0	8.5	24.8	7.8	21.1	0.5	24.5	6.7	22.5	6.0
4.0	18.5	5.9	19.2	5.0	21.8	5.7	22.3	2.6	23.2	1.7	20.2	0.2	24.2	5.0	22.2	5.5
5.0	18.3	5.8	19.0	4.7	21.2	4.5	21.8	0.7	21.6	0.4	18.8	0.2	23.2	1.8	21.9	5.1
6.0	18.3	5.8	19.0	4.5	21.2	4.8	21.2	0.1	20.8	0.3	18.0	0.2	22.5	1.4	21.5	4.9
7.0	18.2	5.9	-	-	21.1	6.4	21.0	0.1	20.1	0.3	17.6	0.2	22.2	1.0	21.3	4.6
8.0	18.2	6.2	-	-	-	-	20.8	0.1	19.4	0.3	-	-	21.8	0.3	21.1	4.1
9.0	-	-	-	-	-	-	-	-	-	-	-	-	21.4	0.2	-	-

WATER QUALITY SUMMARY

ESTES LAKE, SANFORD
MIDAS: 0007, Sample Station # 1

The Maine Department of Environmental Protection (ME-DEP) and the Volunteer Lake Monitoring Program (VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine water quality trends. This dataset does not include data for bacteria, mercury, or nutrients other than phosphorus.

Water quality monitoring data have been collected from Estes Lake since 1977. During this period, 10 years of basic chemical information was collected in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Estes Lake is considered below average based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Estes Lake is moderate to high.

Water Quality Measures: Estes Lake is a colored lake (average color 65 SPU) with an average SDT of 2.5 m (8.3 ft). The water column TP ranges from 14 - 33 with an average of 20 parts per billion (ppb). Chla ranges from 2.8 - 90.1 ppb with an average of 17.3 ppb. Recent dissolved oxygen (DO) profiles show little DO depletion in deep areas of the lake. The potential for phosphorus to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate to high. Because Estes Lake is relatively shallow, it is subject to turbidity from wind action and resuspension of sediment which may contain phosphorus.

The Sanford Sewage Treatment Plant discharges to the stream that runs into Estes Lake. The water quality of Estes Pond is controlled by the quality and quantity of the discharge from the treatment plant. Nutrients and total volume of the discharge have decreased over the past decades.

See ME-DEP Explanation of Lake Water Quality Monitoring Report for measured variable explanations. Additional lake information can be found on the Internet at http://www.lakesofmaine.org/ and/or http://www.maine.gov/dep/blwq/lake.htm, or telephone the ME-DEP at 207-287-3901 or the VLMP at 207-783-7733.

Filename: 0007est1, Revised: 12/04, By bw/jp, Revised 2/11, By jp

LAKE: ESTES L (VLMP 31)
TOWN: SANFORD
COUNTY: YORK

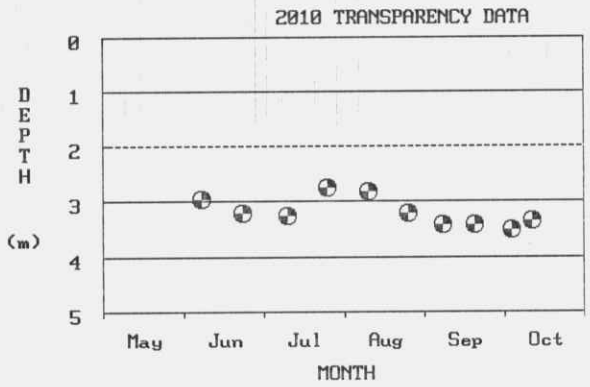
MIDAS: 7
TRUE BASIN: 1
SAMPLE STATION: 2

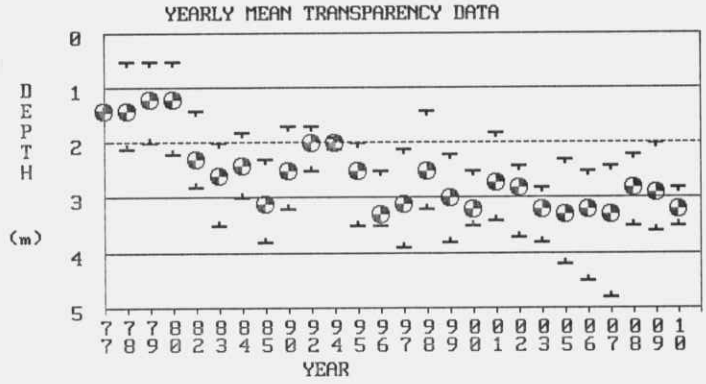
WHOLE LAKE INFORMATION
MAX. DEPTH: 9 m. (30 ft.)
MEAN DEPTH: 3 m. (10 ft.)
DELORME ATLAS #: 02
USGS QUAD: ALFRED
IFW REGION A: Sebago Lake (Gray)
IFW FISH. MANAGMENT: Warmwater

TRUE BASIN CHARACTERISTICS
SURFACE AREA: 77.1 ha. (190.5 a.)
FLUSHING RATE: 50.71 flushes/yr.
VOLUME: 1354254.0 cu. m. (1099 ac.-ft.)
DIRECT DRAINAGE AREA: 63.11 sq. km. (24.37 sq. mi.)

PLEASE NOTE THE FOLLOWING: The SAMPLE STATION # refers to the location sampled. The term TRUE BASIN is used to define areas within a lake that are separated by shallow reefs or shoals and therefore function as separate lakes. There are approximately 50 lakes in the state that have more than 1 True Basin. True Basin Characteristics are now being included in the first section of these reports to enable users of the Phosphorous Loading Methodology to better evaluate the data. If there is no data for a particular True Basin, True Basin Characteristics must be obtained from the DEP. ESTES L has 2 True Basin(s).

SECCHI DISK TRANSPARENCY GRAPHS:





Note: 2010 graphs may indicate multiple readings taken on a given day.

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

[* indicates that Secchi disk was visable at bottom of lake (or one reading used in calculation was visable)].

	MEAN COLOR (SPU)	MEAN pH	MEAN ALK (mg/l)	MEAN COND. (uS /cm)	TOTAL PHOS. MEANS (ppb) EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	SECCHI DISK (m.) MIN.	MEAN	MAX.	N	CHLOROPHYLL A(ppb) MIN.	MEAN	MAX.	TROPHIC STATE INDICES EPI PHOS C	G	SEC	CHL
YEAR																			
1977	-	-	-	-	7	-	-	-	1.4	1.4	1.4	1	32.6	32.6	32.6	-	-	-	-
1978	75	6.72	13.0	84	-	-	-	-	0.5	1.4	2.1	6	3.5	23.7	45.3	-	-	-	97
1979	108	6.07	11.8	73	-	-	-	-	0.5	1.2	2.0	7	2.8	27.5	102.4	-	-	-	-
1980	80	6.18	10.3	72	-	-	-	-	0.5	1.2	2.2	5	6.3	6.3	6.3	-	-	-	-
1982	115	6.52	12.3	55	-	-	-	-	1.4	2.3	2.8	5	3.7	8.4	15.8	-	-	-	-
1983	85	6.45	8.7	37	-	-	-	-	2.0	2.6	3.5	5	4.2	10.2	15.7	-	-	-	73
1984	97	6.62	12.7	42	-	-	-	-	1.8	2.4	3.0	6	3.0	9.5	16.1	-	-	-	70
1985	-	6.90	-	55	-	-	-	-	2.3	3.1	3.8	5	3.2	5.8	7.1	-	-	-	57
1990	-	-	-	-	-	-	-	-	1.7	2.5	3.2	3	-	-	-	-	-	-	-
1992	-	-	-	-	-	-	-	-	1.7	2.0	2.5	3	-	-	-	-	-	-	-
1994	-	-	-	-	-	-	-	-	1.9	2.0	2.1	3	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	2.0	2.5	3.5	5	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	2.5	3.3	3.5	5	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	2.1	3.1	3.9	5	-	-	-	-	-	-	-
1998	-	-	-	-	-	-	-	-	1.4	2.5	3.2	5	-	-	-	-	-	-	-

LAKE: ESTES L (VLMP 31)
TOWN: SANFORD
COUNTY: YORK

MIDAS: 7
*TRUE BASIN: 1
*SAMPLE STATION: 2

SUMMARY OF CHEMICAL AND TROPHIC STATE PARAMETERS:

	MEAN COLOR (SPU)	MEAN pH	MEAN ALK (mg/l)	MEAN COND. (uS /cm)	TOTAL PHOS. MEANS (ppb) EPI CORE	SURF GRAB	BOT. GRAB	PRO. GRAB	SECCHI DISK (m.) MIN.	MEAN	MAX.	N	CHLOROPHYLL A(ppb) MIN.	MEAN	MAX.	TROPHIC STATE INDICES EPI PHOS C	G	SEC	CHL
YEAR																			
1999	-	-	-	-	-	-	-	-	2.2	3.0	3.8	5	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	2.5	3.2	3.5	5	-	-	-	-	-	-	-
2001	-	-	-	-	-	-	-	-	1.8	2.7	3.4	4	-	-	-	-	-	-	-
2002	-	-	-	-	-	-	-	-	2.4	2.8	3.7	5	-	-	-	-	-	-	-
2003	-	-	-	-	-	-	-	-	2.8	3.2	3.8	4	-	-	-	-	-	-	-
2005	-	-	-	-	-	-	-	-	2.3	3.3*	4.2*	4	-	-	-	-	-	-	-
2006	-	-	-	-	-	-	-	-	2.5	3.2	4.5	6	-	-	-	-	-	-	-
2007	28	7.31	12.9	82	-	8	-	-	2.4	3.3	4.8	5	-	-	-	-	-	-	-
2008	-	-	-	-	-	-	-	-	2.2	2.8	3.5	3	-	-	-	-	-	-	-
2009	-	-	-	-	-	-	-	-	2.0	2.9	3.6	5	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	2.8	3.2	3.5	5	-	-	-	-	-	-	-
SUMMARY:	84	6.46	11.7	62	7	8	-	-	0.5	2.6*	4.8	26	2.8	15.5	102.4	-	-	-	74

LATE SUMMER TEMPERATURE / DISSOLVED OXYGEN PROFILES:

	SAMPLE DATE															
DEPTH	09/23/82		08/19/83		09/21/83		08/21/84		09/12/84		08/15/85		09/11/85		08/22/97	
m	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm	°C	ppm
0.0	17.0	7.5	25.4	9.2	22.8	9.3	23.5	9.4	20.5	9.6	27.5	9.1	19.7	10.3	22.1	8.0
1.0	17.0	7.5	25.0	9.4	22.0	9.2	23.0	9.4	20.5	9.6	26.0	9.0	19.2	10.2	21.9	8.1
2.0	17.0	7.5	24.0	9.2	21.0	8.8	22.5	8.7	20.5	9.6	25.0	9.1	19.0	10.0	21.9	8.1
3.0	17.0	7.4	22.8	6.1	19.8	7.8	22.2	8.4	19.5	8.8	23.8	6.8	19.0	9.5	21.3	7.9
4.0	17.0	7.3	21.8	6.2	19.2	7.2	21.8	6.7	18.5	8.8	22.5	4.3	18.5	8.0	20.0	7.7
5.0	17.0	7.3	21.0	6.1	18.3	6.7	21.4	4.8	18.5	7.8	21.2	3.2	18.0	7.6	19.5	7.1
6.0	17.0	6.0	-	-	18.3	6.5	20.5	2.8	18.5	7.0	-	-	17.9	6.6	-	-

WATER QUALITY SUMMARY

ESTES LAKE, SANFORD
MIDAS: 0007, Sample Station #2

The Maine Department of Environmental Protection (ME-DEP) and the Volunteer Lake Monitoring Program (VLMP) have collaborated in the collection of lake data to evaluate water quality, track algal blooms, and determine water quality trends. This dataset does not include data for bacteria, mercury, or nutrients other than phosphorus.

Water quality monitoring data have been collected from Estes Lake since 1977. During this period, 13 years of basic chemical information was collected in addition to Secchi Disk Transparencies (SDT). In summary, the water quality of Estes Lake is considered below average based on measures of SDT, total phosphorus (TP), and Chlorophyll-a (Chla). The potential for nuisance algal blooms on Estes Lake is moderate to high.

Water Quality Measures: Estes Lake is a colored lake (average color 84 SPU) with an average SDT of 2.6 m (8.5 ft). The range of surface grab samples for TP is 8 - 20 parts per billion (ppb) with an average of 14 ppb. Chla ranges from 2.8 - 102.4 ppb with an average of 15.5 ppb. Recent dissolved oxygen (DO) profiles show moderate DO depletion in deep areas of the lake. The potential for phosphorus to leave the bottom sediments and become available to algae in the water column (internal loading) is moderate to high.

The Sanford Sewage Treatment Plant discharges to the stream that runs into Estes Lake. The water quality of Estes Pond is controlled by the quality and quantity of the discharge from the treatment plant. Nutrients and total volume of the discharge have decreased over the past decades.

See ME-DEP Explanation of Lake Water Quality Monitoring Report for measured variable explanations. Additional lake information can be found on the Internet at http://www.lakesofmaine.org/ and/or http://www.maine.gov/dep/blwq/lake.htm, or telephone the ME-DEP at 207-287-3901 or the VLMP at 207-783-7733.

Filename: 0007est2, Revised: 12/04, 2/11 By jp